

Work Order ID 86692

\*86692\*

Page 1

July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals:

Process Plan:

Date: 2-07-1

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start \*NR1\*

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

Draw Nbr

Revision Nbr

D206-667-141

Rev C (DEO)

DS19565

A

100

0.00

\*100\*

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-101 CHG004

110

0.00

\*110\*

Packaging

Packaging

Memo

0.00

Packaging

MLJ 12-7-26

Pto

12-7-16

| W/O: 86692 |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE       | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|            |      |                    |    |      |     |                                     |                          |
|            |      |                    |    |      |     |                                     |                          |

Part No: D206-667-101 PAR #: \_\_\_\_\_ Fault Category: X - tube NCR: Yes ☐ No ☒ DQA: [Signature] Date: 12/08/02  
 Resolution: \_\_\_\_\_ Disposition: use as is QA: N/C Closed: [Signature] Date: 12/8/02

| NCR: 12-1647 |      | WORK ORDER NON-CONFORMANCE (NCR)  |                             |                                 |                |                           |                       |                          |
|--------------|------|---|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE         | STEP | Description of NC<br>Section A  | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|              |      |   | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
| 12.07.16     | 120  | CRUSHING AFTER BENDING<br>IS OVER TOLERANCE.<br>Height is over tolerance.<br>RC BENDING | CP<br>12.07.16              | Acceptable per attached<br>SR.  | N/A            | [Signature]<br>12/07/16   | CP<br>12.07.16        | [Signature]<br>12/17/16  |
|              |      |   |                             |                                 |                |                           |                       |                          |
|              |      |   |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries

Work Order ID 86692

\*86692\*

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July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Crosstube Fwd  
 Start Date: 7/06/12 Start Qty: 1.00 \*1\* Cust Item ID:  
 Required Date: 8/17/12 Req'd Qty: 1.00 \*1\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description  | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 120                            | BENDING MACHINE - CROSSTUBES  | 0.00                 |         |        |              |               |               |                  |                |
| *120*                          |   |                      |         |        |              |               |               |                  |                |
| CNC Bend 1                     | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| CNC Delta 100 Bender           | Bend tube as per Dwg D206-667-141 using CNC bender program 206B-fw and Folio FT _____ |                      |         |        |              |               |               |                  |                |
| 130                            | QC15- Crosstube Dimensional Check   | 0.00                 |         |        |              |               |               |                  |                |
| *130*                          |   |                      |         |        |              |               |               |                  |                |
| QC                             | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |   |                      |         |        |              |               |               |                  |                |

12-7-10

DAS 16

12/16/16

70

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 86692****\*86692\***

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

140

0.00

**\*140\***

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill holes &amp; ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-141. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-141. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-141. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-141. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-141. Allow rivet to sit below surface to compensate for paint.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-141 Inside of Cuff (Do not engrave on outside of tube)

10-\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSTUBE\*\*\*  
Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-141MO  
RM

12-7-17

MO 12-7-19

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Crosstube Fwd  
 Start Date: 7/06/12 Start Qty: 1.00 \*1\* Cust Item ID:  
 Required Date: 8/17/12 Req'd Qty: 1.00 \*1\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID                          | Operation<br>Description  | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|---|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 150<br>*150*<br>QC<br>Quality Control                   | QC5- Inspect part completeness to step on W/O<br><br>Memo<br>*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***   | 0.00<br><br>0.00     |         |        |              |               |               |                  |                |
| 160<br>*160*<br>HandFXtube<br>Hand Finishing Crosstubes | HandFXtube<br>Memo<br>*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***<br><br>1- CLEAN CROSSTUBE WITH WASH'N WIPE   | 0.00<br><br>0.00     |         |        |              |               |               |                  |                |
| 180<br>*180*<br>Outsource2<br>Outsource process - NDT   | Outsource process - NDT per QSI038 4.1<br><br>Memo<br>*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***<br><br>Liquid Penetrant Inspection as per QSI 038Or<br>Issue P/O: 17504 LPI as per ASTM 1417<br>Level 2 Attach copy of NDT results to work order | 0.00<br><br>0.00     |         |        |              |               |               |                  |                |

DAS  
16  
8-8

7/21/12

AS

12-7-20

CZ

12/07/20 (1)

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

190

0.00

\*190\*

Packaging

Packaging

Memo

0.00

Packaging

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O

0.00

\*200\*

QC

Memo

0.00

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Inspect for damage & ensure results are as per Dwg D206-667-103

202

0.00

\*202\*

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

*12/7/2012*

*12-07-22*

*AS 12-7-20*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Work Order ID 86692

\*86692\*

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description                                  | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 205                            | QC7-Inspect Chemical Conversion Coat                      | 0.00                 |         |        |              |               |               |                  |                |
| *205*                          |   |                      |         |        |              |               |               |                  |                |
| QC                             | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***          |                      |         |        |              |               |               |                  |                |
| 210                            |   | 0.00                 |         |        |              |               |               |                  |                |
| *210*                          | SprayPaint  |                      |         |        |              |               |               |                  |                |
| SprayPaint                     | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Spray Painting                 | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***          |                      |         |        |              |               |               |                  |                |
|                                | 1-Prime inside and outside crosstube as per QSI 005 4.2.1 |                      |         |        |              |               |               |                  |                |
|                                | *****Let tube sit up right for 30mins before hanging***** |                      |         |        |              |               |               |                  |                |
|                                | P4500-P-23 Base Batch: 117319                             |                      |         |        |              |               |               |                  |                |
|                                | P4500-C-23 Catalist Batch: 117319                         |                      |         |        |              |               |               |                  |                |
|                                | Start time: 8:00  |                      |         |        |              |               |               |                  |                |
|                                | Finish: 9:00  |                      |         |        |              |               |               |                  |                |

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description                                  | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 230                            |   | 0.00                 |         |        |              |               |               |                  |                |
| *230*                          | SprayPaint  |                      |         |        |              |               |               |                  |                |
| SprayPaint                     | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Spray Painting                 | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***          |                      |         |        |              |               |               |                  |                |
|                                | 1-Paint outside crosstube with White Imron as per QSI 005 |                      |         |        |              |               |               |                  |                |
|                                | 4.2   |                      |         |        |              |               |               |                  |                |
|                                | Imron 55U white paint                                     | Batch: 122831        |         |        |              |               |               |                  |                |
|                                | Imron 125S activator                                      | Batch: 122831        |         |        |              |               |               |                  |                |
|                                | Start: 2:00 Finish: 3:00                                  |                      |         |        |              |               |               |                  |                |
| 240                            | QC14- Inspect Spray Paint                                 | 0.00                 |         |        |              |               |               |                  |                |
| *240*                          |   |                      |         |        |              |               |               |                  |                |
| QC                             | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |   |                      |         |        |              |               |               |                  |                |

(DAS 16 8-30 7/10/14

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Work Order ID 86692

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Item ID: D206-667-101

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description   | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 250                            | Crosstubes   | 0.00                 |         |        |              |               |               |                  |                |
| <b>*250*</b>                   |  |                      |         |        |              |               |               |                  |                |
| Crosstubes                     | Memo   | 0.00                 |         |        |              |               |               |                  |                |
| Crosstubes                     | 1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper, clean the area with 4105S wash 'n' wipe |                      |         |        |              |               |               |                  |                |
|                                | 2-Install supports with Proseal 890 per DSI9565 and QSI 015<br>A/R Proseal 890 Batch: <u>122441</u>                |                      |         |        |              |               |               |                  |                |
|                                | 3- Torque bolts as per dwg   |                      |         |        |              |               |               |                  |                |
|                                | 3-Install nut plates as per Dwg D206-667-141. Touch-up rivet heads with Imron paint.                               |                      |         |        |              |               |               |                  |                |
| 260                            | QC5- Inspect part completeness to step on W/O  | 0.00                 |         |        |              |               |               |                  |                |
| <b>*260*</b>                   |  |                      |         |        |              |               |               |                  |                |
| QC                             | Memo   | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |  |                      |         |        |              |               |               |                  |                |

AP 12 - 7 - 24

1 17:0726

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Work Order ID 86692

\*86692\*

Page 9

July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept \*N900040100\* Setup Start \*NS1\*  
Revision ID: Stop \*NS2\*  
Item Name: Crosstube Fwd  
Start Date: 7/06/12 Start Qty: 1.00 \*1\* Cust Item ID:  
Required Date: 8/17/12 Req'd Qty: 1.00 \*1\* Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description                               | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 270                            | Pick Kit   | 0.00                 |         |        |              |               |               |                  |                |
| *270*                          |  |                      |         |        |              |               |               |                  |                |
| Packaging                      | Memo   | 0.00                 |         |        |              |               |               |                  |                |
| Packaging                      |  |                      |         |        |              |               |               |                  |                |
| 280                            | QC4- 100% Inspect kits for completeness                | 0.00                 |         |        |              |               |               |                  |                |
| *280*                          |  |                      |         |        |              |               |               |                  |                |
| QC                             | Memo   | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |  |                      |         |        |              |               |               |                  |                |
| 290                            |  | 0.00                 |         |        |              |               |               |                  |                |
| *290*                          | Packaging  |                      |         |        |              |               |               |                  |                |
| Packaging                      | Memo   | 0.00                 |         |        |              |               |               |                  |                |
| Packaging                      | Identify and pack for shipping as per PPP D206-667-101 |                      |         |        |              |               |               |                  |                |
|                                | Location: <u>66063</u>                                 |                      |         |        |              |               |               |                  |                |
|                                | PPP Rev: <u>NEW PE</u>                                 |                      |         |        |              |               |               |                  |                |

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Work Order ID 86692

**\*86692\***

Page 10

July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                    | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 300                            | QC21- Final Inspection - Work Order Release | 0.00                 |         |        |              |               |               |                  |                |
| <b>*300*</b>                   |   |                      |         |        |              |               |               |                  |                |
| QC                             | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |   |                      |         |        |              |               |               |                  |                |

12/1/300  
MF  
12-09-27

# Dart Aerospace Ltd

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

July-06-12 11:33:39 AM

Page 1

Work Order ID: 86692  
Parent Item: D206-667-101  
Parent Item Name: Crosstube Fwd

Start Date: 7/06/12  
Start Qty: 1.00

Required Date: 8/17/12  
Required Qty: 1.00

Comments: IPP Rev:F05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM  
IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec  
IPP Rev:H 08-07-28 update as per (par 08-013) DD verified by:EC  
IPP Rev J 09.01.06 Per ECN 08-562 EC verified by:DD IPP REV:K 11.08.05 PFR ECN  
11-615 DD VERF:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand  | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|-----------------|-------------|--------------|---------------|----------------|--------|
| 8 AN5-30A<br>BOLT               |                        | Purchased     | No          |                     |                  | 270             | Each               | 115.0000        | 4           | 4            | 5/1           |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | ST339               |                  | 115             |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 117514              |                  | 7               |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 120423              |                  | 3               |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 120910              |                  | 25              |                    |                 | 7           |              |               |                |        |
|                                 |                        |               |             | 121259              |                  | 30              |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 122141              |                  | 50              |                    |                 |             |              |               |                |        |
| 8 AN5-32A<br>Bolt               |                        | Purchased     | No          |                     |                  | 270             | Each               | 277.0000        | 4           | 4            | 5/1           |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | ST339               |                  | 177             |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 119862              |                  | 2               |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 120423              |                  | 75              |                    |                 | 4           |              |               |                |        |
|                                 |                        |               |             | 122151              |                  | 100             |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | ST340               |                  | 100             |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 121541              |                  | 100             |                    |                 |             |              |               |                |        |
| 8 AN5-7A<br>Bolt                |                        | Purchased     | No          |                     |                  | 270             | Each               | 2,564.0000      | 10          | 10           | 5/1           |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | ST337               |                  | 2564            |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 119017              |                  | 2564            |                    |                 | 10          |              |               |                |        |
| 8 AN960JD516<br>Washer          | NAS1149D0563J          | Purchased     | No          |                     |                  | 270             | Each               | 12.0000         | 18          | 18           | 11/19/546     | 12/7/26        |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | ST338               |                  | 12              |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 2612                |                  | 12              |                    |                 |             |              |               |                |        |

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

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Page 2

Work Order ID: 86692  
Parent Item: D206-667-101  
Parent Item Name: Crosstube Fwd

Start Date: 7/06/12  
Start Qty: 1.00

Required Date: 8/17/12  
Required Qty: 1.00

D2873-043      Manufactured      No      250      Each      80.0000      2      2      AS 12-7-24  
Nut Plate Assembly

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| LG052           | 80             |                 |
| 72644           | 2              |                 |
| 82949           | 38             | ②               |
| 84386           | 40             |                 |

D2873-045      Manufactured      No      250      Each      33.0000      2      2      AS 12-7-24  
Nut Plate Assembly

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| LG052           | 33             |                 |
| 82947           | 33             | ②               |

D2891-1      Manufactured      No      250      Each      37.0000      2      2      AS 12-7-24  
2.25 Support

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| LG051           | 20             |                 |
| 84164           | 20             |                 |
| LG052           | 17             |                 |
| 72822           | 1              |                 |
| 75176           | 1              |                 |
| 82277           | 15             | ②               |

D3595-063-395      Manufactured      No      250      Each      46.0000      4      4      AS 12-7-24  
RUBBER CUSHION

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| LG051           | 46             |                 |
| 82223           | 46             | ④               |

July-06-12 11:33:40 AM

Shop Packet Print

Page 2

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Picklist Print

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Page 3

Work Order ID: 86692

Parent Item: D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 7/06/12

Required Date: 8/17/12

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W8

Purchased

No

250

Each

244.0000

14

14

RIVET

Location

Loc Qty

Loc Code

LG051

33

121017

33

ST314

200

121827

100

122141

100

ST322

11

121255

11

MS21042L5

Purchased

No

270

Each

1,218.0000

4

4

Nut

Location

Loc Qty

Loc Code

300

500

121652

500

ST300

718

108827

4

116105

5

116548

43

119109

654

17651

4

2937

8

MS21920-20

Purchased

No

270

Each

127.0000

4

4

Clamp (per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG050

127

116799

8

120676

8

121067

2

121274

34

122254

75

July-06-12 11:33:40 AM

Shop Packet Print

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| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

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Page 4

Work Order ID: 86692

Parent Item: D206-667-101

Parent Item Name: Crosstube Fwd

D206-667-101TRN

Crosstube Turning Detail

Manufactured No

110 Each 2.0000 1

Start Date: 7/06/12

Required Date: 8/17/12

Start Qty: 1.00

Required Qty: 1.00

Location

Loc Qty

Loc Code

LG

2

84018

1

84019

1

*DO 12-7-16*

*1*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

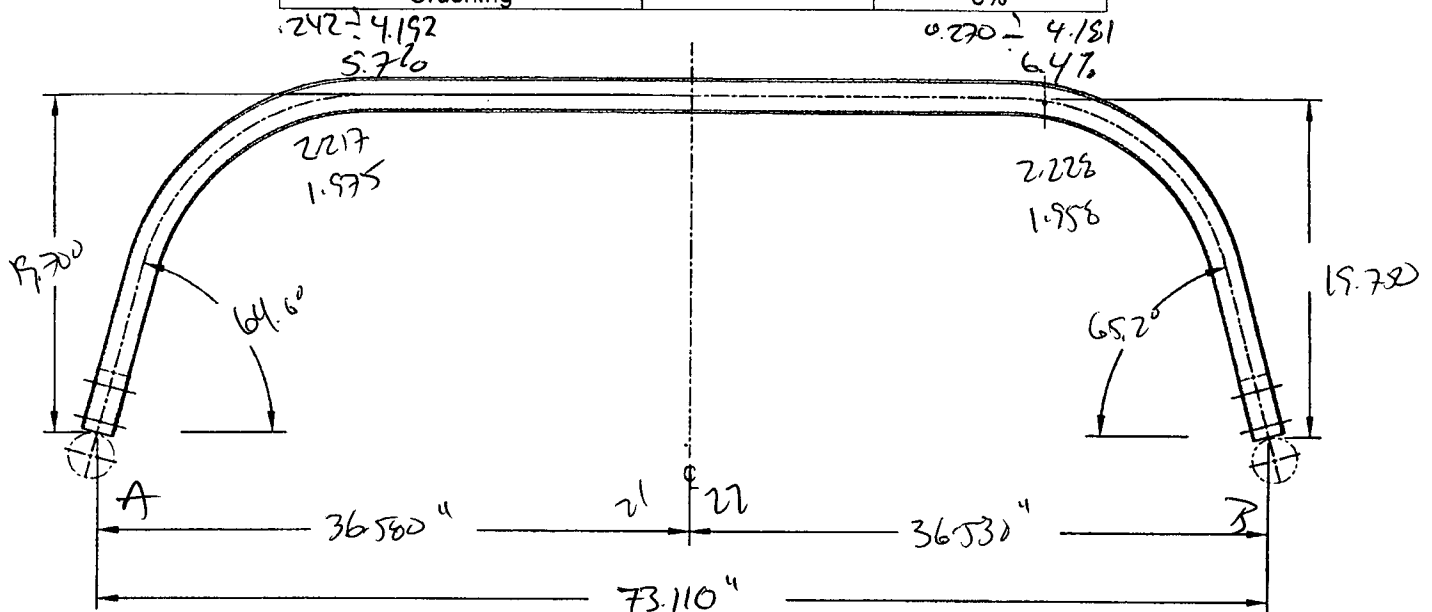
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries

|   |               |                                  |
|---|---------------|----------------------------------|
| <b>DART AEROSPACE LTD</b>                     |               | <b>Work Order:</b> <i>86192</i>  |
| <b>Description:</b> Crosstube High Fwd (206B) |               | <b>Part Number:</b> D206-667-101 |
| <b>Inspection Dwg:</b> D206-667-141           | <b>Rev:</b> C | <b>Page</b> 1 of 1               |

| Required Dimension | Min   | Max   |
|--------------------|-------|-------|
| Height             | 19.41 | 19.67 |
| 1/2 Span           | 36.47 | 36.73 |
| Angle              | 65    | 67    |
| Total Span         | 72.94 | 73.46 |
| Bending Passes     | 12    | --    |
| Crushing           | --    | 6%    |



|                | Side A | Side B |
|----------------|--------|--------|
| Bending Passes | 21     | 22     |
| Crushing       | 5.76   | 6.47   |
| Comments       |        |        |
|                |        |        |
|                |        |        |
|                |        |        |
|                |        |        |

|                 |                 |
|-----------------|-----------------|
| QC15 Inspection | <i>DAS</i>      |
| Date            | <i>16/08/17</i> |

| Rev | Date     | Change                             | Revised by | Approved  |
|-----|----------|------------------------------------|------------|-----------|
| A   | 07.02.06 | New Issue                          | KJ/JM      |           |
| B   | 09.07.30 | Dimensions revised per Dwg Rev C   | KJ         |           |
| C   | 12.04.16 | Added bending, crushing dimensions | KJ         | <i>up</i> |

| Item | Qty<br>-141 | Part Number    | Description  |
|------|-------------|----------------|--|
| 1    | X           | D206-667-141   | CROSSTUBE ASSEMBLY (206B HIGH FWD)   |
| 2    | 1           | D6001-105      | CROSSTUBE  |
| 3    | 2           | D2873-043      | NUT PLATE  |
| 4    | 2           | D2873-045      | NUT PLATE  |
| 5    | 2           | D2891-1        | SUPPORT  |
| 6    | 4           | D3595-063-395  | RUBBER CUSHION   |
| 7    | 4           | MS21920-20     | CLAMP (OR MS21920-21)  |
| 8    | 14          | MS20601AD4W8   | RIVET (OR NAS9302B-4-8)  |
| 9    | A/R         | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6001-105  
FINISHED LENGTH = 93.18±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 11.3 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. B86692

DEO ATTACHED

OCW #11-615  
11.07.26

UNDER REVIEW

RELEASED  
08/11/12/14/15

|            |  |   |              |
|------------|--|---|--------------|
| C          | REVISE GENERAL NOTES/PART LIST (ZN 07-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS.<br>D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN C4-3, C5-3 & D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4. | RF  | 08.11.06     |
| B          | ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES   | PH  | 05.07.26     |
| A          | NEW ISSUE  | CP  | 00.11.17     |
| REV.       | DESCRIPTION  | BY  | DATE         |
| DESIGN     | RF   | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA   |              |
| DRAWN      | RF   | DRAWING NO.   | REV. C       |
| CHECKED    | RF   | D206-667-141  | SHEET 1 OF 4 |
| MFG. APPR. | RF   | TITLE   | SCALE        |
| APPROVED   | RF   | CROSSTUBE ASS'Y (206B HIGH FWD)   | NTS          |
| DE APPR.   | RF   | COPYRIGHT © 2000 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |              |
| DATE       | 08.11.06   |   |              |

8 7 6 5 4 3 2 1

D

D

C

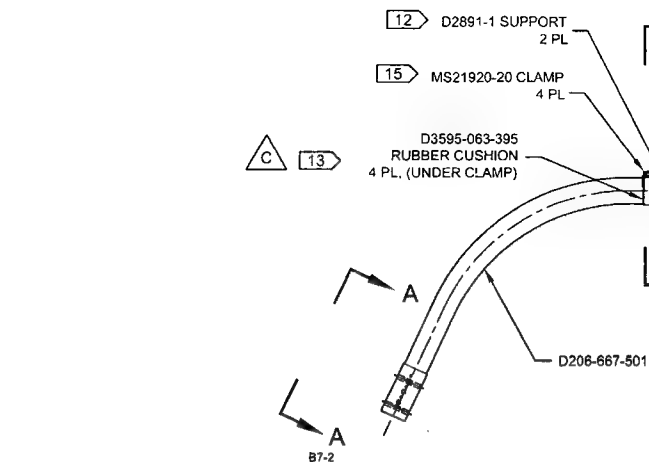
C

B

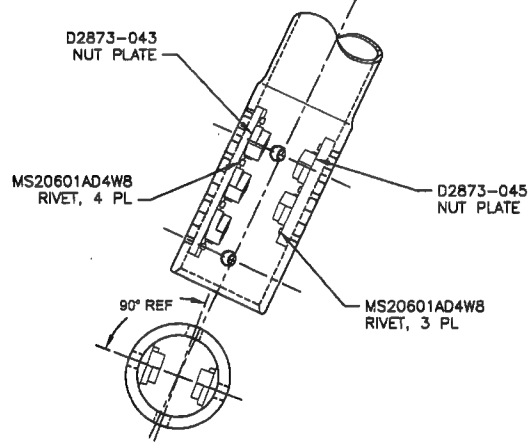
B

A

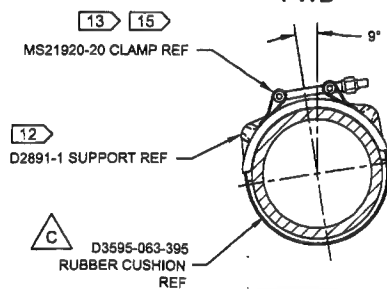
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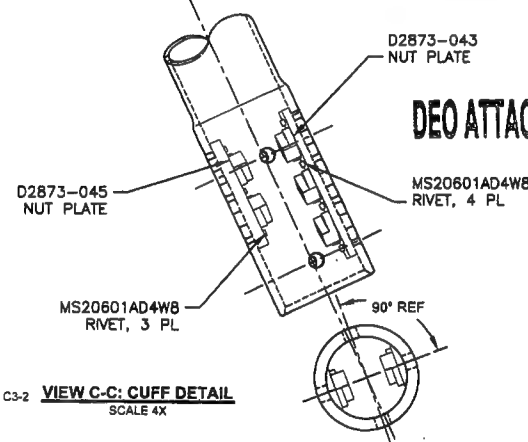
**D206-667-141**  
**ASSEMBLY DETAIL**  
(VIEW LOOKING FWD)



C6-2 **VIEW A-A: CUFF DETAIL**  
SCALE 4X



D5-2 **SECTION B-B**  
SCALE 5X



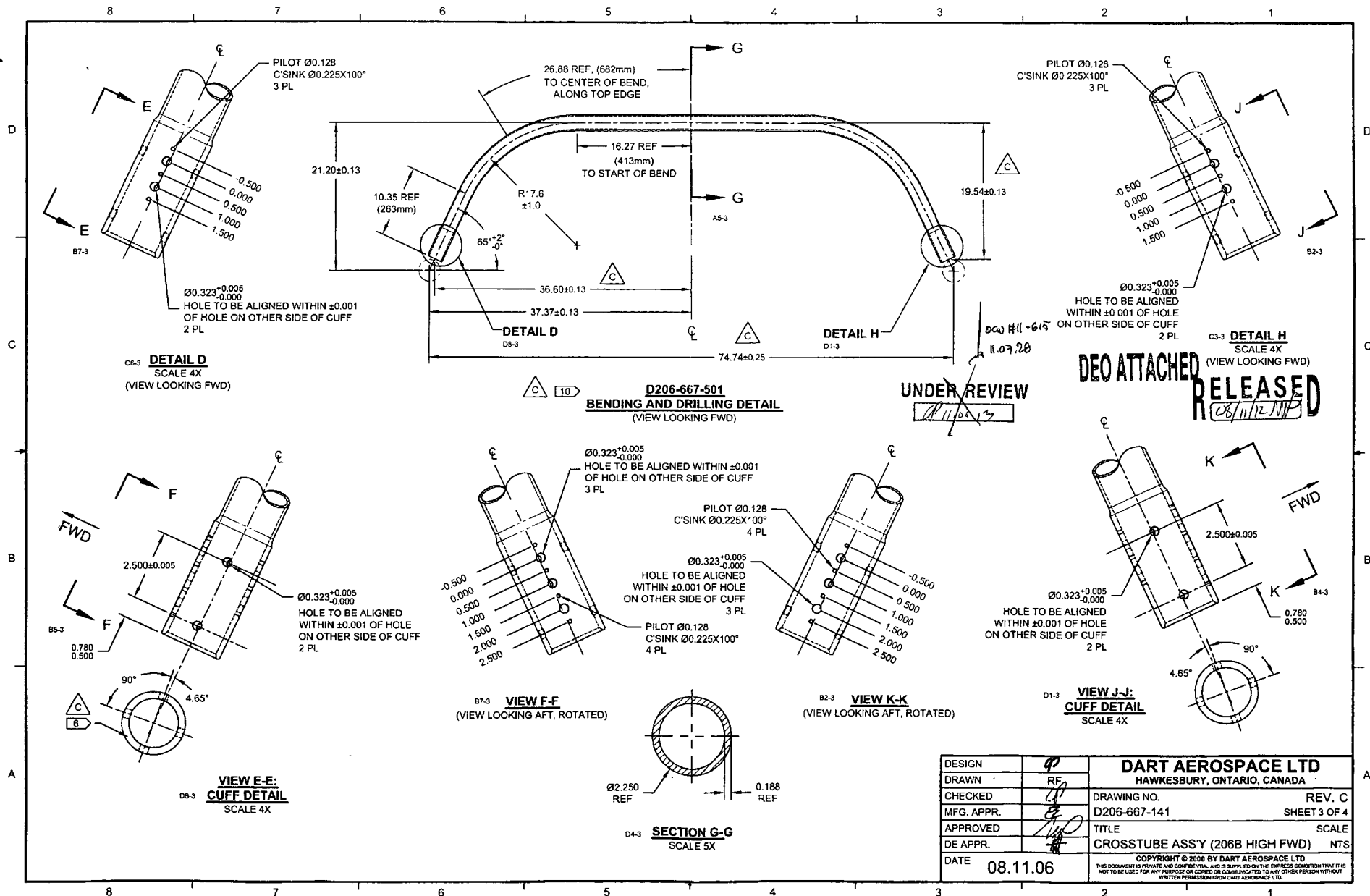
C3-2 **VIEW C-C: CUFF DETAIL**  
SCALE 4X

ECW #11-615  
11.07.28  
**UNDER REVIEW**  
**RELEASED**  
08/11/2006

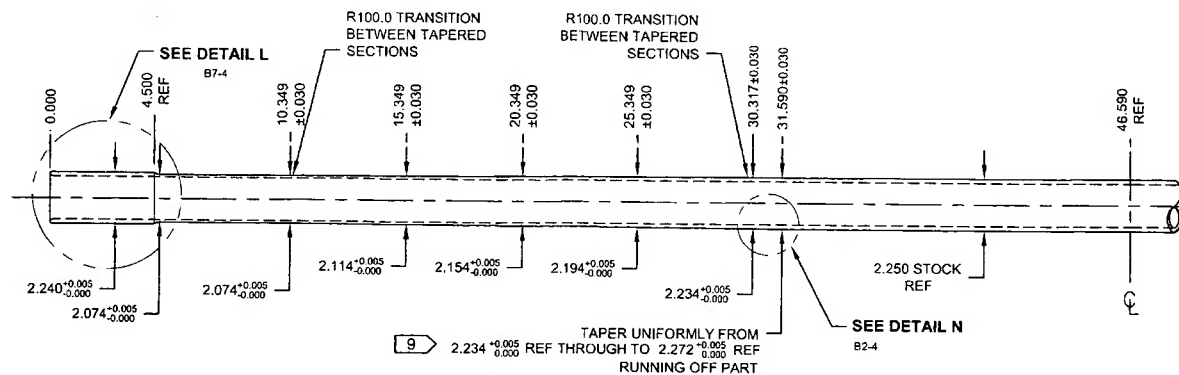
**DEO ATTACHED**

|  |          |  |              |
|--|----------|--|--------------|
| DESIGN   | 90       | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN  | RF       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED  | 90       | DRAWING NO.                            | REV. C       |
| MFG. APPR.   | 90       | D206-667-141                           | SHEET 2 OF 4 |
| APPROVED   | 90       | TITLE                                  | SCALE        |
| DE APPR.   | 90       | CROSSTUBE ASSY (206B HIGH FWD)         | NTS          |
| DATE   | 08.11.06 | COPYRIGHT © 2000 BY DART AEROSPACE LTD |              |
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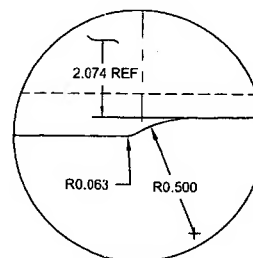
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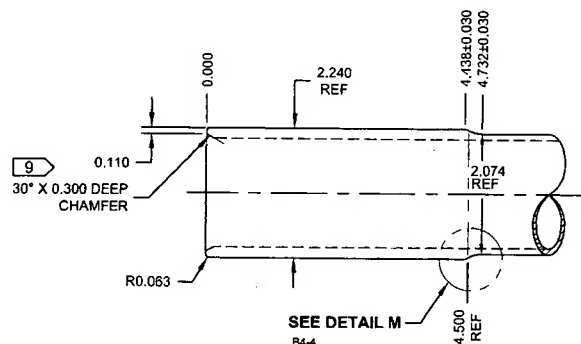




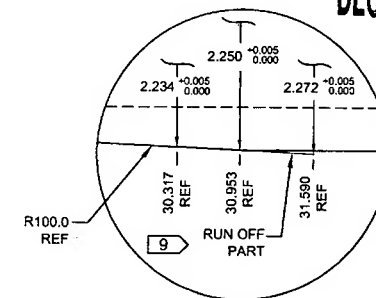
**TURNING DETAIL**



**DETAIL M:  
CUFF TRANSITION**  
NOT TO SCALE



**DETAIL L:  
CROSSTUBE CUFF**  
NOT TO SCALE



**DETAIL N:  
TAPER RUN-OFF**  
NOT TO SCALE

BCW #11-615  
11.09.18

UNDER REVIEW

DEO ATTACHED

RELEASED  
08/11/12/14

|            |          |   |              |
|------------|----------|---|--------------|
| DESIGN     | 9        | DART AEROSPACE LTD  |              |
| DRAWN      | RF       | HAWKESBURY, ONTARIO, CANADA   |              |
| CHECKED    | 9        | DRAWING NO.   | REV. C       |
| MFG. APPR. | 9        | D206-667-141  | SHEET 4 OF 4 |
| APPROVED   | 9        | TITLE   | SCALE        |
| DE APPR.   | 9        | CROSSTUBE ASS'Y (206B HIGH FWD)   | NTS          |
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|                             |  |                  |   |  |                                |                           |              |
|-----------------------------|--|------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO.<br>D206-667-141 | TITLE<br>CROSSTUBE ASS'Y (206B HIGH FWD) | REV. C           | DART AEROSPACE LTD<br>ENGINEERING ORDER |  | D.E.O. NO.<br>D206-667-141-C-1 | SHEET NO.<br>SHEET 1 OF 1 | SCALE<br>NTS |
| DRAWN<br>P                  | CHECKED<br>ASS                           | MFG. APPR.<br>D  | APPROVED<br>W                           |  | DE APPR.<br>H                  |                           |              |
| DATE<br>11.07.15            | DATE<br>11.07.20                         | DATE<br>11.07.21 | DATE<br>11/07/21                        |  | DATE<br>11.07.21               |                           |              |

**PURPOSE:**

REPLACE MAGNOBOND WITH PROSEAL.

**CHANGE:**

**IS:**

| Item | Qty<br>-141 | Part Number     | Description                   |
|------|-------------|-----------------|-------------------------------|
| 9    | A/R         | PROSEAL 890 B-2 | SEALANT, AMS-S-8802 CLASS B-2 |

**WAS:**

|   |     |                |   |
|---|-----|----------------|---|
| 9 | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,<br>TYPE II, CLASS 2 ADHESIVE) |
|---|-----|----------------|---|

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

**IS:**

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

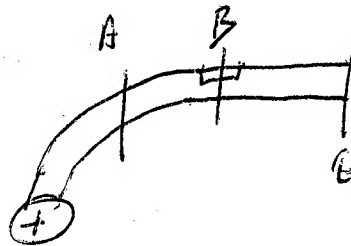
**WAS:**

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED  
2011-07-28  
W

CRUSHING OF D206-667-101

Acceptability of 8% CRUSHING



Point A:  $OD_1 = 2.238$   $OD_2 = 1.906$   
 $CRUSHING = (2.238 - 1.906) / (2.238 + 1.906) = 8\%$   
 $I = 0.263 \text{ in}^4$  FROM AUTOCAD

Point B:  $OD = 2.250$   $ID = 1.874$   
 $I = 0.653 \text{ in}^4$

A:  $F = Mc/I = P \times 10.8 \times 1.906 / 2 \times 0.263 = 39.13 \cdot P$   
 $= P \times 24.7 \times 2.250 / 2 \times 0.653 = 41.86 \cdot P$

$MS = 41.86 / 39.13 - 1 = 0.06$

So Tube will break at support before area of 8%  
crushing - 8% crushing in area at end of bend  
is acceptable

P. Rozai



## LIQUID PENETRANT TEST REPORT

P- 12202

PAGE 1 OF 1

CLIENT DAVE NEW SPACE DATE July 20/12 TIME AM ☒ PM ☐  
ATTENTION ANDY / LINDA ACUREN JOB NO. 188-12-C0285  
ADDRESS 1270 ABELEEN ST. POWO No. 17504  
HANKSBURY, ON WORK LOCATION same  
ACCEPTANCE STD. ASTM 1417/OSI REV./DATE 2005  
PROJECT F.P.I. on cross tubes  
ITEM(S) EXAMINED 11 - PCS

JOB DESCRIPTION PROCEDURE No. LT002 REV./DATE 2008 TECHNIQUE No. LT-1042 REV./DATE 2008  
PART NO. SEE RESULTS MATERIAL ALUMINUM THICKNESS VARIOUS  
SCOPE A WET FLOUORESCENT LIQUID PENE TRANT EXAMINATION  
WAS COMPLETED ON THE EXTERNAL SURFACE 100%

## TEST DETAILS

|                   |   |                                     |   |  |  |
|-------------------|---|-------------------------------------|---|--|--|
| METHOD            | <input checked="" type="checkbox"/> FLUORESCENT | <input type="checkbox"/> VISIBLE    | <input checked="" type="checkbox"/> WATER WASH  | <input type="checkbox"/> SOLVENT REMOVABLE                     | <input type="checkbox"/> POST EMULSIFIED |
| FAMILY BRAND      | <u>MAGNAFLUX</u>                                |                                     | BLACK LIGHT S/N <u>16459</u>  | <input type="checkbox"/> OUTPUT > 1000 $\mu$ W/cm <sup>2</sup> | <input type="checkbox"/> AMBIENT < 2 fc  |
| PENETRANT         | <u>2467</u>                                     | MINIMUM DWELL TIME <u>45</u> MIN.   | LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT | <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE             |  |
| PENETRANT REMOVER | <u>H2O</u>                                      | MINIMUM DRY TIME <u>&gt;10</u> MIN. | OTHER <u>LABINO</u>   |  |  |
| DEVELOPER         | <u>SKD 52</u>                                   | MINIMUM DWELL TIME <u>10</u> MIN.   | LIGHT METER S/N <u>1098866</u>  | CAL DUE DATE <u>July 2012</u>                                  |  |
| DEVELOPER TYPE    | <input checked="" type="checkbox"/> NON AQUEOUS | <input type="checkbox"/> AQUEOUS    | <input type="checkbox"/> DRY  |  |  |

## TEST SURFACE

|                     |                                       |  |   |                                       |  |
|---------------------|---------------------------------------|--|---|---------------------------------------|--|
| SURFACE CONDITION   | <input type="checkbox"/> AS GROUND    | <input type="checkbox"/> AS WELDED               | <input checked="" type="checkbox"/> MACHINED                | <input type="checkbox"/> SHOT BLASTED | <input checked="" type="checkbox"/> CLEAN BARE METAL |
| SURFACE TEMPERATURE | <input type="checkbox"/> < -4°C/ 20°F | <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F | <input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F | <input type="checkbox"/> > 52°C/125°F |  |

RESULTS- ☒ METRIC ☐ IMPERIAL

|                 |   |       |   |   |  |
|-----------------|---|-------|---|---|--|
| CROSS TUBE - O. |   |       |   | ENGINEERING REQUEST - NCL<br>WAS ORIGINALLY NOT ON TUBE 12/21<br>Refat P-10159. |  |
| 1               | " | 85877 | ✓ |   |  |
| 1               | " | 86693 | ✓ |   |  |
| 1               | " | 86692 | ✓ |   |  |
| 1               | " | 84764 | ✓ |   |  |
| 1               | " | 86932 | ✓ |   |  |
| 1               | " | 87329 | ✓ |   |  |
| 1               | " | 87328 | ✓ |   |  |
| 1               | " | 85315 | ✓ |   |  |
| 1               | " | 85316 | ✓ |   |  |
| 1               | " | 85317 | ✓ |   |  |
| 1               | " | 85318 | ✓ | 120722  |  |

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

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In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

|   |                            |                      |
|---|----------------------------|----------------------|
| CLIENT REPRESENTATIVE <u>Andy Sheldon</u> PRINT | <u>AS</u> SIGNATURE        | DTR # <u>E117389</u> |
| TECHNICIAN (SIGNATURE): <u>Mike Sheldon</u>     |                            | REPORT REVIEWED BY:  |
| NAME (PRINT): <u>Mike Sheldon</u>               | 1 <sup>ST</sup> TECHNICIAN | NAME INITIALS        |
| CGSB LEVEL <u>#</u> SNT LEVEL                   | CGSB LEVEL SNT LEVEL       |                      |
| CGSB REG. NO <u>6606</u>                        | CGSB REG. NO               |                      |